Claims:

What is claimed is:

1. A flux assisted solid phase epitaxial growth method, characterized in that it comprises the steps of:

depositing an amorphous thin film made of an objective substance and a flux of a substance producing a eutectic with said objective substance but not producing any compound with said objective substance, on a substrate at a temperature less than a eutectic point of said objective and flux substances, and

heat-treating said substrate at a temperature not less than the eutectic point of said objective and flux substances and less than whichever lower one of melting points of said objective and flux substances.

2. A flux assisted solid phase epitaxial growth method as set forth in claim 1, characterized in that said flux is of an amount which is selected according to an amount of said objective substance to be grown so that the objective and flux substances have a composition ratio at said eutectic point.

3. A flux assisted solid phase epitaxial growth method, characterized in that it comprises the steps of:

depositing a thin film made of an objective substance and a thin film made of a flux of a substance producing a eutectic with said objective substance but not producing any compound with said objective substance, on a substrate at a temperature less than a eutectic point of said objective and flux substances, and

heat-treating said substrate at a temperature not less than the eutectic point of said objective and flux substances and less than whichever lower one of melting points of said objective and flux substances.

4. A flux assisted solid phase epitaxial growth method as set forth in claim 3, characterized in that said flux is of an amount which

is selected according to an amount of said objective substance to be grown so that the objective and flux substances have a composition ratio at said eutectic point.

5. A flux assisted solid phase epitaxial growth method as set forth in any one of claims 1 to 4, characterized in that said objective substance is a multi-component oxide which contains Bi as a constituent element, and said flux is of the substance producing the eutectic with said multi-component oxide containing Bi as a constituent element and not producing any compound therewith.

6. A flux assisted solid phase epitaxial growth method as set forth in claim 5, characterized in that said multi-component oxide which contains Bi as a constituent element is one selected from the group which consists of $Bi_4Ti_3O_{12}$, $Bi_4BaTi_4O_{15}$, $SrBi_2Ta_2O_3$ and $Bi_2Sr_2CaCu_2O_8$, and said flux is a ternary composition of Bi_2O_3 – CuO – TiO family.

7. A flux assisted solid phase epitaxial growth method as set forth in claim 6, characterized in that said multi-component oxide which contains Bi as a constituent element is $Bi_4Ti_3O_{12}$, and said ternary composition of Bi_2O_3 – CuO – TiO family is Bi_2O_3.

8. A flux assisted solid phase epitaxial growth method as set forth in any one of claims 1 to 4, characterized in that said substrate is a single-crystal substrate or a substrate covered with a single-crystal thin film.

9. A flux assisted solid phase epitaxial growth method as set forth in claim 8, characterized in that said single-crystal substrate or said single-crystal thin film is of one composition selected from the group which consists of $SrTiO_3$, Al_2O_3, Si, $LaAlO_3$, MgO and $NdGaO_3$.